

# Work Order ID 58427

May 6, 2010 2:43:42 PM



Page 1

Item ID: D2500-1-190

Accept



Setup Start



Revision ID:

Item Name: Ext'n - I' Beam Tube 4"

Stop



Start Date: 06/05/2010 Start Qty: 80.00



Cust Item ID:

Required Date: 13/05/2010 Req'd Qty: 80.00



Customer:

Reference:

Approvals:

Process Plan:

*Handwritten initials*

Date: 10-5-06

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

Draw Nbr	Revision Nbr
D2500	Rev H

100

0.00



PURCHASING

Purchasing

Memo

0.00

Purchasing

Issue P/O: 11854

- a) Extrude as per Dwg D2500
- b) Material: 6061-T6 (QQ-A-200/8)
- c) Minimum yield tensile strength = 35 ksi
- d) Minimum ultimate tensile strength = 38 ksi
- e) Minimum elongation = 8%
- f) Order at 190" long
- g) Bon L Canada Inc. tool # 897105
- h) To be packed per DSK 066
- i) Pull test to ASTM standard B221 required.
- j) Material certification is required

*Handwritten: C2*

*Handwritten: 10/5/7*

*Handwritten: 80*

110

Receive & Inspect for Damage & Mat'l Certs

0.00



Packaging

Memo

0.00

Packaging

Ensure material certification is attached

*Handwritten signature: S. Salas*

*Handwritten: canton*  
*Handwritten: 254*  
*Handwritten: QSP019*

*Handwritten: 10/5/26*  
*Handwritten: 84*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

May 6, 2010 2:43:42 PM



**Accept**

**Setup Start**

**Stop**

[illegible]**Cust Item ID:**

**Customer:**

**Reference:**

Run Start



**Approvals:**      **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Stop**



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

**Insp.**  
**Stamp**

0.00



## Memo

0.00

## Quality Control

Check Pull test per Dwg D2500 for compliance page attached. Check hardness with Webster tester

cont'd  
KBY

QSP019

Identify as per dwg & Stock Location: LC

0.00



## Packaging

## Memo

0.00

## Packaging

Wh. 10/05/27  
(x84)

QC21- Final Inspection - Work Order Release

0.00



QC

## Memo

0.00

## Quality Control

10/05/31 *AG*

mf  
10-5-27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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**NOTE:** Date & initial all entries




May 6, 2010 2:43:47 PM

[illegible]

\_\_\_\_\_

**Required Date:** 13/05/2010

**Required Qty: 80.00**

Component Item ID/	Replacement	Mfg/ Purchased	Bin	Primary	Last	Route	Unit of	Qty on	Qty per Kit	Qty	Date	Status
D2500-1-190P			No			110	Each	0.0000	1			
												
Ext'n -1' Beam Tube 4"  <i>P. 14/02/20</i> 												

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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NOTE: Date & initial all entries

# SPECIFICATION CONTROL DRAWING

## D2500-1-XXX EXTRUSION & D2500-3-XXX EXTRUSION

### NOTES:

1) MATERIAL: 6061-T6 ALUMINUM PER QQ-A-200/8 OR AMS-QQ-A-200/8 OR ASTM B221 ✓

MINIMUM TENSILE YIELD STRENGTH = 35 KSI  
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI  
MINIMUM ELONGATION = 8%

A SAMPLE FROM EACH BATCH WILL BE PULL TESTED TO ASTM STANDARD B221 BY AN APPROVED TESTING FACILITY TO ENSURE THAT THE BATCH MEETS THE ABOVE MINIMUM MECHANICAL PROPERTIES

2) FINISH: N/A

3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED ✓

4) UNITS: INCHES UNLESS OTHERWISE NOTED

5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX

6) IDENTIFICATION: IDENTIFY WITH DART B/N USING FINE POINT PERMANENT INK MARKER

7) WEIGHT: D2500-1 = 0.143 lb/in, D2500-3 = 0.066 lb/in

8) FOR D2500-1 PART NUMBER IS D2500-1-XXX WHERE XXX IS CUT LENGTH (EX. D2500-1-190 IS 190" LONG). D2500-1 EXTRUSION MANUFACTURED FROM:

- A) BON L DIE # 897105 -> PREFERRED
- B) CARADON MIDEAST DIE # PAH-28030
- C) CARADON MTL DIE # MH-18868

9) FOR D2500-3, PART NUMBER IS D2500-3-XXX WHERE XXX IS CUT LENGTH IN INCHES (EX. D2500-3-100 IS 100" LONG). D2500-3 EXTRUSION MANUFACTURED FROM:

- A) CARADON INDALEX DIE # MS-18867

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 58427  
10-5-06

RELEASED  
2010-02-02  
MT

H	REDRAW & REFORMAT DWG; CORRECT BON L DIE # TYPO (ZN B8-1), ADD AMS & ASTM MAT'L OPTION (ZN D8-1), TOLERANCES NOW PER CARADON DWG (SHT 2)	CP	09.07.16
G	ADD DIE NUMBERS & 'DIMS IN INCHES' NOTES	PH	07.04.17
F	CHANGE MAT. TO 6061-T6	DS	97.09.29
E	CHANGE MATERIAL TEMPER	DS	96.10.24
D	ADD MATERIAL PROPERTIES	DS	96.10.07
C	ADD D2500-3 WEB	BW	96.04.26
B	CHANGE INTERNAL WEB	DS	96.03.24
A	NEW ISSUE	DS	96.03.19
REV.	DESCRIPTION	BY	DATE
DESIGN	<u>4</u>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA DRAWING NO. <u>D2500</u> REV. H SHEET 1 OF 2 TITLE <u>EXTRUSION</u> SCALE <u>NTS</u>	
DRAWN	<u>9</u>		
CHECKED	<u>PH</u>		
MFG. APPR.	<u>MT</u>		
APPROVED	<u>MT</u>		
DE APPR.	<u>MT</u>	DATE <u>09.07.16</u> <small>COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

W/O:		WORK ORDER CHANGES					
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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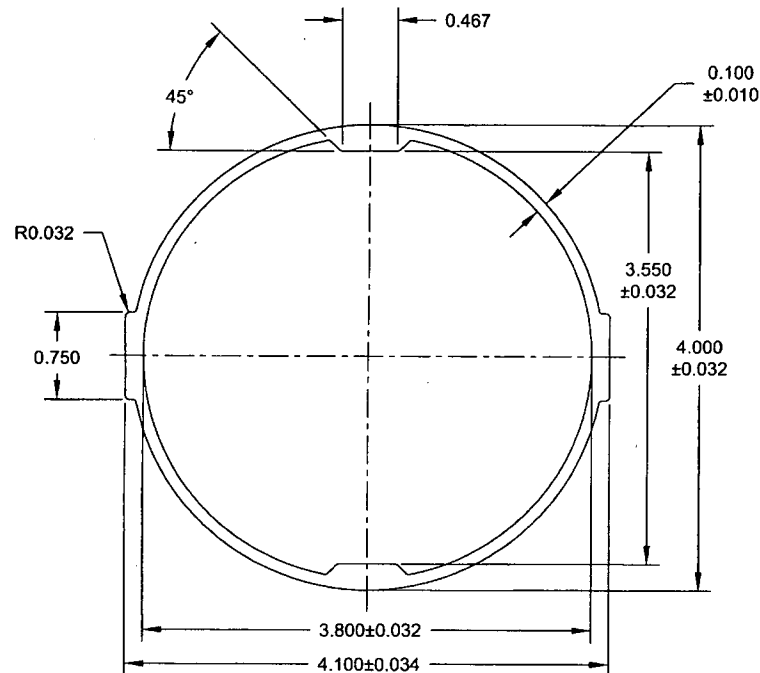
8 7 6 5 4 3 2 1

D

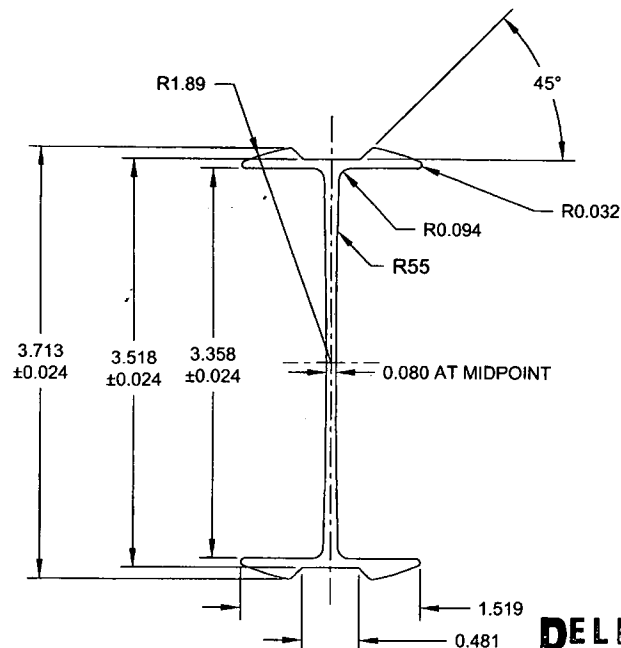
C

B

A



D2500-1



D2500-3

**RELEASED**  
2010-02-02  
MAP

w/o 58427

DESIGN	#	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	92		
CHECKED	BT	DRAWING NO.	REV. H
MFG. APPR.		D2500	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		EXTRUSION	NTS
DATE	09.07.16	<small>COPYRIGHT © 1995 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIES OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

8 7 6 5 4 3 2 1

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID PO11854

Purchase Order Date 5/07/10

PO Print Date 5/07/10

Page Number 1 of 2

Order From :

VC-BON001

SIGNATURE ALUMINUM  
1850 CLEMENTS ROAD  
PICKERING, ON L1W 3R8  
CA

Contact Name  
Vendor Phone 800 563 1079  
Vendor Fax 800 565 8339  
Vendor Account Nbr

Buyer Chantal Lavoie  
Requisition Nbr  
Tax Resale Nbr 10127-2607  
Terms Net 30  
Currency CAD  
FOB

Ship To : DART AEROSPACE LTD 1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**FAXED**  
5/10/10

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D2500-1-190P	Ext'n -I' Beam Tube 4"	5/24/10 Yes	80.00 Each	Yours ppd	\$74.3030	\$5,944.24
		<b>Special Inst:</b> AS PER DWG D2500 REV. H B58427 MATERIAL: 6061-T6 AS PER QQ-A-200/8 OR AMS-QQ-A-200/8 OR ASTM B221 MINIMUM YIELD TENSILE STRENGTH = 35 KSI MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI MINIMUM ELONGATION = 8% LENGTH: 190" BON L CANADA TOOL: 897105 TO BE PACKED PER DSK 066 PULL TEST TO ASTM STANDARD B221 REQUIRED					
2	D2600-3-120P	Extrusion Round 3" 350	5/24/10 Yes	80.00 Each	Yours ppd	\$44.3380	\$3,547.04

MATERIAL CERTIFICATION  
REQ'D UPON DELIVERY

No substitution or deviation without  
consent.  
Certificate of Conformity or Material  
Certification required when applicable

Change Nbr: 1

Change Date: 5/07/10



INVOICING COMPANY AND LOCATION  
SIGNATURE ALUMINUM CANADA  
1850 CLEMENTS ROAD  
PICKERING ON L1W 3R8

# SHIPPING MANIFEST

MANIFEST DATE 05-25-10
MANIFEST NUMBER 680001
SALES ORDER NUMBER 63179

ACCT# 00046024

SHIP TO DART AEROSPACE LTD. 1270 ABERDEEN ST. HAWKESBURY ON K6A 1K7 CN	SOLD TO / PURCHASER DART AEROSPACE LTD. 1270 ABERDEEN ST. HAWKESBURY ON K6A 1K7 CN
PHONE 613-632-5200	PHONE 613-632-5200

TERMS / FREIGHT  
O / P

REFER TO  
THESE NUMBERS ON  
ALL CORRESPONDENCE

CREDIT REP HAMBROOK, PAU 905-508-3250	SALES REP
FIELD SALES REP Kutter A 450-435-6551	CUST SERVICE REP Burton D 905-427-2227

CUSTOMER ID 46024	ORDER DATE 05/07/10	CUSTOMER PO NUMBER 11854	JOB	BILL OF LADING NUMBER 08407843
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ITEM NO.	ORIGINAL ORDER QUANTITY	UNIT	PREVIOUS SHIPPED QUANTITY	MFG. PART NUMBER CUSTOMER PART NUMBER	ALLOY & TEMPER LENGTH CUTTING TOLERANCE	FINISH DESCRIPTION FABRICATION DESCRIPTION SHIPPING TOLERANCE	THIS SHIPMENT			UNIT	QUANTITY DUE
							NBR OF PKGS	GROSS POUNDS	NET QUANTITY		
01	80	KG	0	DAA-897105-2 D2500-1-190  LOT/TKT DETAIL:	6061 /T6 190" +5/16 " -0 "	MILL CERTIFICATE OF COMP (+010-010,0088-0072)	5	999	954	KG	0
		M	0						405.38	M	0
		PC	0						84	PC	0
							1	214	205		18 PC
							1	214	205		18 PC
							1	214	205		18 PC
							1	214	205		18 PC
							1	214	205		18 PC
							1	143	134		12 PC
02	80	KG	0	DAA-897122-1 D2600-3-120  LOT/TKT DETAIL:	6061 /T6 120" +3/16 " -0 "	MILL CERTIFICATE OF COMP (+015-015,0092-0068)	2	563	543	KG	0
		M	0						234.70	M	0
		PC	0						77	PC	0
							1	327	317		45 PC
							1	236	226		32 PC

Transportation/Traffic damages and/or shortage claims are to be noted on the delivery copy of sellers shipping manifests and signed and dated below by customers authorized representatives.  
No return materials will be accepted for credit without permission. The articles and/or services covered by this shipping manifest were produced in accordance with the fair labor standards act of 1938 as amended. Order accepted subject to the terms and conditions stated on the reverse side.

PAGE 1

7	1562	1497	KG
		640.08	M
		161	PC
TOTALS			

# CERTIFICATE OF COMPLIANCE

## SIGNATURE ALUMINUM CANADA

500 EDWARD AVENUE  
RICHMOND HILL, ON L4C 4Y9

Cert Date	Cert No	Sales Order	Page
05/25/10	206812	63179	1
Cust PO	B/L No	Lot	Date
11854	08407843	63179010	5/25/10

Sold To	Ship To
46024	46024
DART AEROSPACE LTD. 1270 ABERDEEN ST. HAWKESBURY, ON K6A 1K7	DART AEROSPACE LTD. 1270 ABERDEEN ST. HAWKESBURY, ON K6A 1K7

Item No	Part No	Item Description	Cust Part
1.000	DAA-897105-2	190" Mill 6061 T6	D2500-1-190
Gross Weight	999 KGS		
Net Qty	954 KG	84 PC	405 M 5 PKG
Specification		Die Desc	
AMS-QQ-A-200/8 & ASTM B221-08			

### Mechanical Tests:

Test No.	Tensile MPA / KSI	Yield MPA / KSI	%Elongation	Conductivity	Bend/ Drift HREW
1	315.9 / 45.8	287.6 / 41.7	10.2	.0	93

### Chemical Analysis:

SI	FE	CU	MN	MG	CR	ZN	TI
.64	.27	.25	.07	.89	.06	.08	.02

8 w/lost 26

This will certify that the material described herein has been inspected and tested in accordance with Signature Aluminum Canada's standard sampling and testing procedures or in accordance with the requirements of any specification forming a part of the material description to the extent indicated herein. Data of chemical composition for the material and test results from samples representative of the material are set forth above hereof or in any attachments hereto. This information shows that the material meets the applicable requirements. Inspection and test records are maintained on file. This certificate shall be deemed apart of and subject to the terms and conditions of warranty set forth on the reverse side of our order acknowledgment form. No other warranties are applicable.

D. VanBakel, QA Manager Signature Aluminum Canada Inc